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PART II - MISCELLANEOUS NOTIFICATIONS OF INTEREST TO THE PUBLIC

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NOTIFICATIONS BY HEADS OF DEPARTMENTS Etc.,

DIRECTOR GENERAL
DISASTER RESPONSE & FIRE SERVICES DEPARTMENT
ANDHRA PRADESH

D.O.Lr.No.58 / DGFS / Camp / 2022.

Date: 12-10-2022.

NOTIFICATION FOR COMMERCIAL / BUSINESS /
ASSEMBLY / HIGH RISE BUILDINGS

NOTIFICATION FOR COMMERCIAL/BUSINESS/ASSEMBLY/HIGH RISE BUILDINGS

1) The purpose is:

First, to define principles, standards and minimum requirements that will **satisfy** to meet the fire safety in various buildings for issuing “No Objection Certificate” as envisaged in Sec13(2) of Andhra Pradesh Fire Services Act,1999. Therefore, this notification is deemed as Provisional NOC.

Second, to ensure compliance by notifying authorities competent to inspect, test and certify the functioning of fire safety equipment and other safety measures such as exits etc.

Third, to lay down procedures for time bound disposal of applications for “No Objection Certificate” (NOC) **within sixty days** of its submission as prescribed in the Act, 1999. Following the doctrine of legitimate expectations, specifying the conditions for deemed approval in case of Renewal of “No Objection Certificate” applications, and

Finally, to remove ambiguities and to notify the Buildings which don't require “No Objection Certificate” to bring transparency.

2) Buildings under the purview of this notification:

(I) Mandatory Fire Safety Provisions in these Buildings:

- (a) Commercial buildings used for office, business, hotel, retail or any Commercial activity (Stilt/Ground + 4 floors and above).
- (b) All malls with multiplexes irrespective of height and independent theaters.
- (c) All function and assembly halls including State Assembly and Zilla Parishad buildings.
- (d) High-rise residential buildings (Stilt/Ground +5 floors and above).

(II) Recommendatory Fire Safety Provisions in these Buildings:

- (a) All judicial buildings.
- (b) Currency Chests, Data Centers, Libraries and any place of storage of valuable documents .

3) The principles governing the Fire Safety Norms:

An extract from the Foreword to Part 4 of the National Building Code.

*“Absolute safety from fire is not attainable in practice. The objective of this part is to specify measures that will provide the degree of safety from fire which can be reasonably achieved. **The Code endeavors to avoid requirements that might involve unreasonable hardship or unnecessary inconvenience or interference with normal use and occupancy of buildings** but insists upon compliance with minimum standards of fire safety necessary for building occupants and users”.*

Analyzing the “Root Causes” of Fire accidents in the buildings to prescribe reasonable **Fire Safety Measures to prevent Fire accidents from happening in the first place, to save lives and to minimize damage to property.**

The endeavour is to deploy modern technologies that are **resilient, maintenance free, easy to operate in case of emergency and don’t get rusted in the largely Coastal Environment** of the State.

The governing principle is to have large margin of Safety or failure proof deployment of Fire Fighting Equipment in “Decentralized Way” so that any individual Equipment failure will not affect the Fire Fighting capabilities as there are many similar Equipments in any building. Even the Fire Fighting Equipments of neighborhood buildings can also be used for fighting fire as all these pumps are designed to be “mobile” and can operate either on “Electric” or “Fuel motors” besides being versatile in drawing water from any source such as Sumps, Overhead tanks, any municipal water tanks, or any tap in the building or any well or drum.

Therefore, **the above versatility and mobility of the pumps deployed in buildings will multiply the margin of safety manifold unlike the case of immobile Centralized Pumping System.**

The above is just a layman expression of a well known mathematical proof that any Centralized Complex System with many interdependent components however reliable, is “fragile” compared to Decentralized System having independent components of similar reliability.

The existing Centralized Pumping System can continue with a condition that they shall be maintained mandatorily with qualified technical teams replacing all rusting parts every three years so that they will be useful in case of actual emergencies instead of just being show pieces.

In any particular building, the fire accidents are very rare events (very low probability events) as per the last 25 years recorded fire accidents in the State. Given human tendency to attend to immediate requirements and neglect rare occurrences (which is the principal reason why centralized dedicated fire equipment often doesn't work in case of emergency), we need to incorporate machines that are **maintenance free** and **multipurpose** that can be used for daily purposes such as ensuring hygiene/sanitation so that functioning and familiarity with the use of equipment are automatically ensured. ***This feature further enhances margin of Safety.***

Moreover, the building design Engineers to have flexibility in deploying any advanced technology depending on the Fire load expected.

We have authorized the following technologies and methods vide Andhra Pradesh Government Gazette No. W.No.02, Dated.18-01-2022 after due testing considering the hardships and practical difficulties in deploying conventional centralized systems.

- (a) Decentralized Fire Safety System using Plunger Pumps, Fire Engine Pumps etc.
- (b) Aerosol Automatic Extinguishing devices.
- (c) Dry Chemical Powder Modular System.
- (d) CO₂ flooding system.
- (e) N₂ flooding system.
- (f) Clean agent flooding system.
- (g) Installation of automatic heat and temperature sensing Devices or Fire Detection and Alarm System.

In addition, Foam Generators are hereby authorized to be used for oil related fires and wherever applicable.

It may be noted that (b) to (g) are meant to be alternatives to conventional Water Sprinkler System and they can be deployed in automatic work mode depending on the application. For example, Aerosol or Dry chemical powder gets released if temperature exceeds 58°C just as in case of Water Sprinkler's. Similarly, any gas (Foam/CO₂/N₂/Clean agent etc.,) can be made to work in auto flooding mode using temperature sensors and/or smoke sensors.

In addition, Yard Hydrant can be designed with HDPE/CPVC pipeline buried underground (so that it won't be burnt during fire) and water tapping outlets (made of steel) can be attached to that pipeline, where ever required. This is intended to avoid iron pipes in coastal rust prone environment of the State. It shall be installed in big campuses.

Above all, highest priority is accorded to Passive Safety measures such as ensuring two exits, following Electrical Safety Checklist and Smoke management guidelines.

Finally, minimization of Energy use (Sustainability) and Cost Effectiveness are to be observed. Let us be comforted with the fact that "no building is an island" in itself to handle any fire outbreak but thankfully, there are professional fire fighters spread across the State in 180 Fire Stations available "on duty" 24 x 7 and 365 days. In addition, neighbours are ready to help with their mobile fire fighting equipment and trained persons. ***To encourage this, we recommended signing of Mutual Aid Agreements.***

4) Root-Causes:

In our analysis of major fire accidents in these buildings across India, the Root cause of fire is ***Electrical Short Circuit in 90% of cases and leakage of LPG.***

Most casualties are due to inhaling smoke and lack of multiple exits.

5) Safety measures mandated to prevent Electrical Origin Fires:

Electrical Safety Checklist		Compliance
(i)	All Electrical wirings in the building shall confirm the code of practice for Electrical wiring IS:732:1989 and also shall confirm for Fire Safety Wiring of the building Electrical Installations as per IS:1646:2015. Most common mistake is that the neutral wires to the three pin plugs are not of sufficient thickness to carry the current in case of any short circuits.	
(ii)	Installation of Miniature Circuit Breakers (MCBs) in all floors.	
(iii)	No Overloading or to have a different power socket for different equipments.	
(iv)	Electrical wiring to be changed every ten years, wherever high power consuming appliances such as Air conditioner sets.	
(v)	LED lights in Closed Rooms, Corridors, Staircases connected to inverter (Battery) to ensure well light pathways for Exit or Evacuation inspite of regular power failure in any Emergency.	
(vi)	Grounding/Earthing Shall be done. For details refer IS 3043:1987.	
(vii)	For Larger buildings, it is recommended to install non pressurized Aerosol suppression system (or) CO ₂ flooding system in Electrical Panel Rooms.	
(viii)	Lightening conductors may be provided for high rise buildings exceeding 5 floors.	
(ix)	<p>Generator and Transformer Safety:</p> <p>(a) We recommend the Generators and Transformers are located outside the buildings.</p> <p>(b) In case of indoor installation.</p> <p>First, enclose with 2 hours fire rated walls and provide for appropriate smoke ventilation so as to ensure that smoke shall not enter into staircases or occupied areas.</p>	

	Second , recommended to provide automatic aerosol or CO ₂ flooding system.	
(x)	All the above safety measures shall be Certified by the authorized Electrical Engineer.	
(xi)	<i>No “Conditional NOC” or “Renewal NOC” shall be issued without satisfying Electrical Safety Checklist including item 5(iv) above under any circumstances as this will compromise basic safety of occupants.</i>	

6) Kitchens Safety:

Fire safety measures	compliance
<p>1) Piped LPG is recommended in all new constructions with pipelines running in separate shafts away from staircases on external walls.</p> <p>2) In commercial buildings, One 5HP Plunger Pump, Fire Extinguishers, Gas Detection and Alarm System shall be installed and be kept in good working condition.</p> <p>3) In commercial buildings, the Kitchen shall be separated from other parts of the same building by 60 minutes fire rated wall and 60 minutes fire resistance doors.</p> <p>4) In commercial kitchens, flameless cooking technologies such as steam or electrical etc are recommended.</p> <p>5) In residential buildings, the LPG cylinders to be stored outside Kitchen with adequate ventilation.</p> <p>6) There shall be smoke exhaust in all kitchens.</p> <p>7) Periodic checking of LPG stoves/pipes/cylinders by authorised Mechanic of Gas Dealer is highly recommended.</p>	

7) Smoke Management and Ventilation System:

I) Smoke is the main killer in any fire incident. In some fire situations, the generation of smoke is so huge that it may fill an entire building within short time and obscure visibility. Smoke and fumes which are the dangerous products of combustion have critical influence on life safety and fire suppression practices.

II) *Smoke management aims at venting smoke in such a way that people inside can safely exit any building under fire, without getting suffocated.*

III) Smoke Venting:

Removal of hot smoky gases from the upper parts of any building under Fire and entry of air from outside is termed as **“Venting”**. Without fire ventilation, the temperature reaches nearly three times that with ventilators working.

The *main objectives* of smoke venting are:

- (a) To allow people to escape from the building involved in Fire by restricting spread of smoke and hot gases in the escape route.
- (b) To facilitate Fire Fighter to enter the building and to locate the seat of the Fire so as to control the Fire quickly, Safely and more efficiently.
- (c) To reduce damage due to smoke and heat.

IV) In Delhi Commercial building, on 14th may, 2022 at 4pm, a fire broke out in Generator room kept under only staircase due to electric short circuit. It quickly spread due to stored diesel cans generating huge smoke and fumes. The smoke engulfed the only staircase blocking escape of over 70 young executives having business meeting in upper floor. Many jumped out of windows leaving 27 people dead due to inhalation of smoke and fumes.

This highlights the importance of Electrical Safety, multiple exits and most importantly preventing the smoke from engulfing the staircases so that they can be safe exits.

Therefore, we urge the architects to design smoke vents in such a way that the exit pathways are kept clean of smoke and fumes for atleast an hour (upto 2 hours depending on occupancy) using the following:

- (a) Fire rated wall enclosures.
- (b) Fire rated Doors, Shutters, Curtains and Glass to seal the passage ways or exits from smoke and fumes.
- (c) Providing appropriate vents or exhaust fans to evacuate smoke and fumes without engulfing the safe exit/passages.

- (d) Ensuring smoke vents in all closed glass façade buildings.
- (e) Making sure Air Conditioner ducts don't compound the problem by carrying smoke to all parts of buildings by providing automatic dampeners etc.
- (f) Any other advanced technology materials that are fire rated and shield smoke can be used.

V) The above is most crucial in multiplexes, function halls and conference rooms located in upper floors of a mall or hotel where highly inflammable cloths or oils or kitchens are housed in lower floors.

Not only that there should be adequate width staircases for evacuation from multiplexes etc. in case of any fire incident, but also it is essential to ensure that smoke doesn't enter either the theaters or exist staircases for atleast an hour appropriately deploying the above technologies.

VI) The method of testing to know whether the smoke enters theaters or exit staircases is called "Smoke Test", where in smoke is generated artificially in mall area and tested whether it enters theater or passage exits/staircases for an hour.

The idea of "Smoke Test" is to make sure that a family watching an interesting movie in the multiplex located in any mall, can walk out safely, without suffocating with smoke and fumes, in case of any unfortunate incident of fire breakout in any part of the mall.

- 8) Fire Safety Equipment to be installed for immediate response to fire breakout observing the principles stated below:**

- A) Commercial buildings above stilt/Ground +4 floor is used for office, business, hotel, retail or any commercial activity.**

CHECKLIST FOR FIRE AND LIFE SAFETY IN COMMERCIAL BUILDINGS		
S.No	Fire Safety Measure	Compliance
1.	<p>01 No. of Fire Extinguisher of ABC/CO2 type for every 100 Sq. Meters Area:</p> <p>As most fires are of Electrical origin, the above Fire Extinguishers which are handy, easy to use and very effective against small fires are mandated to be provided in all parts of building within accessible distance on all floors.</p>	

2.	<p>Fire Alarm system:</p> <p>There is a need for an alarm system so that if there is a fire breakout in any part of a building, all the staff should be immediately alerted so that they can take appropriate actions as practiced in Mock Drills. As security personnel function 24x7, we have mandated manual alarm systems to reduce false alarms in Indian conditions. However, reliable automated alarm systems can also be employed at the option of managements.</p>	
3.	<p>a) Total Minimum water Storage: 5000 Liters (Over head tank + Ground sump).</p> <p>There is a need for adequate water storage to fight fires using installed fire fighting Equipment. Building Architects are required to provide assured water storage that lasts for at least an hour when all the installed fire fighting Equipment is fully operational.</p> <p>We have indicated minimum assured storage of 5,000 liters (over head tank + Ground Sump) for each building/Block. However, the architects are advised to make additional storage available using their judgment about water availability in the area and fire load expected in the buildings. In big complexes, where there are many buildings/blocks , architect can optimize the total storage as water can be shared between neighborhood blocks and normally fire doesn't happen in more than one block at a time.</p> <p>b) Up to 05 Floors height of buildings :</p> <p>(i) 02 HP (Plunger Pump+ Electrical Motors connected to main Generator or Fuel Motor @ one per floor) connected to normal plumbing system.</p> <p>(ii) And for floor area more than 1000sqmtrs on each floor additionally, one 5 Hp (Plunger Pump + Petrol Engine) on wheels at ground floor sump.</p>	

c) If any Commercial building higher than 05 Floors:

(i) 05 HP (Pump + Electrical Motors connected to main Generator) with isolated power line @ one on even number floors and 5 HP (Pump + Petrol Engine Motor) @ one on odd number floors. These shall be connected to normal plumbing system with Hose Pipe which covers total floor area or 30 Metres length whichever is more. These should be **"on wheels"** and hence mobile. There shall be water tapping points at each floor near staircase.

(ii) 16 HP (Pump + Petrol Engine) on wheels at Ground floor sump.

(iii) Where the height of the building is more than 30 Meters or more than 10 floors sprinklers should be provided in all floors from 11th floor upwards. The sprinklers shall be connected to **CPVC** pipe as prescribed in clause 11.8.2 of IS:15105:2021 and the Overhead tank with piping design in accordance with good engineering practice.

iv) Two Number trolley mounted 50 KG/ 100 KG ABC Cylinders for the whole campus.

In addition to what has been mandated in small commercial establishments, we have enhanced Electrical fire fighting ability by prescribing 150 Kg trolley mounted ABC powder Cylinders. There is mobile, maintenance free and are effective against Electrical fires besides being cost effective. They may be kept at floors having Electrical intensive Equipment.

Finally, 16 HP Plunger Pumps are suggested for High Rise buildings at ground Sump as they can generate up to 120 Kg/ Cm² water pressure and the water jet can cover upto 10 floors height of the building easily. These pumps are also effective in generating mist and are easy to operate. However, Architects can install any advanced technology that can be similarly effective in High Rise buildings keeping in view of the above principles.

4.	<p>If underground parking is provided, then temperature sensors connected to hooter and also that can give alerts via cell phone to security persons and Management is prescribed. As the security personnel function 24x7, this system can reliably alert the required security staff and others, to act as per Standard Operating procedure in case of Fire outbreaks.</p> <p>However, management may choose to install reliable automatic fire alarm systems and automatic sprinkler system (The Sprinklers shall be connected to CPVC pipe as per clause 11.8.2 of 15:15105:2021 and pipeline connected to overhead tank) in basement, but not compulsory.</p>	
5.	The water tapping points to connect the plunger Pumps to normal Plumbing system are to be provided at two separate places in each floor preferably at staircase.	
6.	<p>Display the Following No's at important places</p> <p>(i) Fire Department Number (101).</p> <p>(ii) Ambulance (108).</p> <p>(iii) Police (100).</p>	
7.	<i>The above to be certified by an authorized Civil Engineer.</i>	

B) Multiplexes in Malls and Independent Theaters:

	Minimum Fire safety equipment to be provided:
(a)	<p>01 No. of Fire Extinguisher of ABC/CO2 type for every 100 Sq. Meters Area:</p> <p>As most fires are of Electrical origin, the above Fire Extinguishers which are handy, easy to use and very effective against small fires are mandated to be provided in all parts of building within accessible distance on all floors.</p>

(b)	<p>Fire Alarm system:</p> <p>There is a need for an alarm system so that if there is a fire breakout in any part of a building, all the staff should be immediately alerted so that they can take appropriate actions as practiced in Mock Drills. As security personnel function 24x7, we have mandated manual alarm systems to reduce false alarms in Indian conditions. However, reliable automated alarm systems can also be employed at the option of managements.</p>
(c)	<p>Total Minimum water Storage required as per Table.7 Part IV of National Building Code of India, 2016 and as amended from time to time.</p>
d)	<p>(i) 05 HP (Pump + Electrical Motors connected to main Generator) with isolated power line @ one on each floors and 5 HP (Pump + Petrol Engine Motor) @ one on each screen. These shall be connected to normal plumbing system with Hose Pipe which covers total floor area or 30 Metres length whichever is more. These should be “on wheels” and hence mobile. There shall be water tapping points at each floor near staircase.</p> <p>However, higher capacity pumps in more number can be deployed depending on fire load expected.</p> <p>(ii) Two Number trolley mounted 50 KG/ 100 KG ABC Cylinders for the whole campus.</p>
(e)	<p>If underground parking is there, then Temperature sensors connected to Hooters and also that can give alerts via cell phone to Security persons and Management be installed. Parking Area can have suitable water tap points and 08 HP (Pump + Petrol Engine) in each Basement. More than one level of basement is there, then Automatic Exhaust fans be fitted to evacuate smoke.</p>
(f)	<p>The water tapping points to connect the plunger Pumps to normal Plumbing system are to be provided at five separate places in each floor preferably at staircase.</p>
(g)	<p>No conditional “NOC” shall be granted without passing “Smoke Test”, without complying with electrical and kitchen safety for Multiplexes in Malls. This is not applicable to independent theatres or multiplexes without mall.</p>

c) Function/Assembly Halls:

CHECK LIST FOR FIRE & LIFE SAFETY IN ASSEMBLY BUILDINGS		
S.No	Fire Safety Measure	Compliance
1.	<p>01 No. of Fire Extinguisher of ABC/CO2 type for every 100 Sq. Meters Area:</p> <p>As most fires are of Electrical origin, the above Fire Extinguishers which are handy, easy to use and very effective against small fires are mandated to be provided in all parts of building within accessible distance on all floors.</p>	
2.	<p>Fire Alarm system:</p> <p>There is a need for an alarm system so that if there is a fire breakout in any part of a building, all the staff should be immediately alerted so that they can take appropriate actions. As security personnel function 24x7, we have mandated manual alarm systems to reduce false alarms in Indian conditions. However, reliable automated alarm systems can also be employed at the option of managements.</p>	
3.	<p>a) Up to 05 Floors height of buildings :</p> <p>02 HP (Plunger Pump+ Electrical Motors connected to main Generator or Fuel Motor @ one per floor) connected to normal plumbing system.</p> <p>We prescribed 2HP plunger pumps as they can generate upto 40 Kg/Cm² water pressure where as NBC recommends only 4Kg/Cm² water pressure if their suction pipe is connected to any water source such as sump, overhead tank, any water tank or even dropped in a water drum. These pumps can generate "mist" which is highly effective in controlling fires. These pumps work on either Electrical Motors or Fuel Motors. They are light weight and can be fitted with Wheels to make them "mobile". We advise the builders to provide water tapping points at two places on each floor preferably close to each Staircase.</p>	

We need these pumps to function even in case of power failure. Hence, we advise that in case of using Electrical Motor driven pumps, let them be connected to main generator. Also, use some fuel Motor driven pumps for better reliability.

However, the Architects are advised to use higher capacity pumps (upto 16 HP Plunger Pumps or Fire Engine Pumps that are available in the market with ISI markings) depending on the expected fire load in each floor and if the floor area exceeds 10,000 Square feet. They may have new plumbing system if required to support high capacity pumps. In addition, the Architects are encouraged to use any new technology systems that can reliably generate water pressure of 10 Kg/Cm² as and when fire breaks out.

Also, in case of less than 5 floors buildings with more than 1000 sq mtrs floor area, we prescribed an additional 5 Hp pump as this can generate upto 60 Kg/Cm² water pressure which can reach even top floor from ground Sump. This is an additional reliability measure to ensure safety in such a big facilities.

We prescribed about 30 meters delivery plastic pipe connected to all the above pumps so that all floors in a building can be covered with multiple pumps as 30 meters delivery pipe can be carried through Staircase to all floors even from ground floors without moving the pumps. This improves resiliency or margin of safety of the installed Fire Safety Equipment.

	<p>b) If any building higher than 05 Floors and upto 10 floors :</p> <p>(i) 02 HP (Pump + Electrical Motors connected to main Generator or Fuel Motor) @ one per floor connected to normal plumbing system.</p> <p>(ii) 16 HP (Pump + Petrol Engine) on wheels at Ground floor sump.</p> <p>(iii) 02 Nos. of Trolley Mounted ABC 150 Kg Fire Extinguishers to be provided.</p>	
	<p>In addition to what has been mandated in small assembly buildings, we have enhanced Electrical fire fighting ability by prescribing 150 Kg trolley mounted ABC powder Cylinders. There are mobile, maintenance free and are effective against Electrical fires besides being cost effective. They may be kept at floors having Electrical intensive Equipment.</p> <p>Finally, 16 HP Plunger Pumps are suggested for High Rise buildings at ground Sump as they can generate up to 120 Kg/ Cm² water pressure and the water jet can cover upto 10 floors height of the building easily. These pumps are also effective in generating mist and are easy to operate. However, Architects can install any advanced technology that can be similarly effective in High Rise buildings keeping in view of the above principles.</p>	

4.	<p>Underground Parking:</p> <p>If underground parking is provided then temperature sensors connected to hooter and also that can give alerts via cell phone to security persons and Management is prescribed. This system can reliably alert the required security staff and others, to act as per Standard Operating procedure in case of Fire outbreaks.</p> <p>However, management may choose to install reliable automatic fire alarm systems and automatic sprinkler system (The Sprinklers shall be connected to CPVC pipe as per clause 11.8.2 of 15:15105:2021 and pipeline connected to overhead tank) in basement, but not compulsory.</p>	
5.	<p>It is not recommended to have the buildings having shops of highly inflammable substances such as cloths/garments/textiles/gases/dangerous explosive chemicals etc.. below these facilities. This is to prevent fire accidents happening in those shops not to have serious adverse impact on occupant safety.</p> <p><i>No "Conditional NOC" or "Renewal NOC" shall be issued in the above cases of Mixed Occupancy under any circumstances as this will compromise basic safety of occupants without passing "Smoke Test".</i></p>	
6.	<p>Display the Following No's at important places</p> <p>(iv) Fire Department Number (101).</p> <p>(v) Ambulance (108).</p> <p>(vi) Police (100).</p>	

D) HIGH RISE RESIDENTIAL(Group-A) BUILDINGS:

	Minimum Fire safety equipment to be provided:
(a)	<p>01 No. of Fire Extinguisher of ABC/CO2 type for every 100 Sq. Meters Area:</p> <p>As most fires are of Electrical origin, the above Fire Extinguishers which are handy, easy to use and very effective against small fires are mandated to be provided in all parts of building within accessible distance on all floors.</p>
(b)	<p>Fire Alarm system:</p> <p>There is a need for an alarm system so that if there is a fire breakout in any part of a building, all the staff should be immediately alerted so that they can take appropriate actions. As security personnel function 24x7, we have mandated manual alarm systems to reduce false alarms in Indian conditions. However, reliable automated alarm systems can also be employed at the option of managements.</p>
(c)	Total Minimum water Storage required as per Table.7 Part IV of National Building Code of India, 2016 and as amended from time to time.
(d)	<p>(i) 05 HP (Pump + Electrical Motors connected to main Generator) with isolated power line @ one on even number floors and 5 HP (Pump + Petrol Engine Motor) @ one on odd number floors. These shall be connected to normal plumbing system with Hose Pipe which covers total floor area or 30 Metres length whichever is more. These should be "on wheels" and hence mobile. There shall be multiple water tapping points at each floor near staircase.</p> <p>(ii) Where the height of the building is more than 45 Meters or more than 15 floors, sprinklers shall be provided in all floors from 16th floor upwards. The sprinklers shall be connected to CPVC pipe as prescribed in clause 11.8.2 of IS:15105:2021 and the Overhead tank with piping design in accordance with good engineering practice .</p>

	<p>(iii) Yard Hydrant Stand Post run with CPVC Pipeline (shall comply with IS 16088, bearing ISI mark and fittings shall comply with the IS 16534 with regard to its fabrication and installation) at underground shall be provided around the building premises to feed water to Fire Engines in case of emergency . These pipeline shall connect to Water Tank duly connecting the pump of not less than 900 LPM discharge. Using CPVC pipeline to avoid damage due to corrosion in coastal environment of the State.</p> <p>iv) Two Number trolley mounted 50 KG/ 100 KG ABC Cylinders for the whole campus.</p>
(e)	If underground parking is there, then Temperature sensors connected to Hooters and also that can give alerts via cell phone to Security persons and Management be installed. Parking Area can have suitable water tap points and 08 HP (Pump + Petrol Engine) in each Basement. More than one level of basement is there, then Automatic Exhaust fans be fitted to evacuate smoke.
(f)	The water tapping points to connect the plunger Pumps to normal Plumbing system are to be provided at two separate places in each floor preferably at staircase.
(g)	Smoke Management, Kitchen Safety and Electrical Safety shall be ensured.

E) Judicial/Data Centers/Library/Bank Currency Chests :

S.No	Fire Safety Measure	Compliance
1.	<p>01 No. of Fire Extinguisher of ABC/CO2 type for every 100 Sq. Meters Area:</p> <p>As most fires are of Electrical origin, the above Fire Extinguishers which are handy, easy to use and very effective against small fires are mandated to be provided in all parts of building within accessible distance on all floors.</p>	
2.	<p>Fire Alarm system:</p> <p>There is a need for an alarm system so that if there is a fire breakout in any part of a building, all the staff should be immediately alerted so that they can take appropriate actions as practiced in Mock Drills. As security personnel function 24x7, we have mandated manual alarm systems to reduce false alarms in Indian conditions. However, reliable automated alarm systems can also be employed at the option of managements.</p>	
3.	<p>a) Total water storage: 5,000 Liters (Overhead tank + Ground Sump) for District Courts, However, High Court 10,000 Liters of water storage in total.</p> <p>There is a need for adequate water storage to fight fires using installed fire fighting Equipment. Building Architects are required to provide assured water storage that lasts for at least an hour when all the installed fire fighting Equipment is fully operational.</p> <p>b) For all Buildings:</p> <p>2 HP (Pump + Electrical Motors connected to main Generator) @ one per each floor connected to normal plumbing system 5 HP (Pump + Petrol Engine) on wheels at Ground floor.</p>	

	<p>We prescribed 2HP plunger pumps as they can generate upto 40 Kg/Cm² water pressure where as NBC recommends only 4Kg/Cm² water pressure if their suction pipe is connected to any water source such as sump, overhead tank, any water tank or even dropped in a water drum. These pumps can generate “mist” which is highly effective in controlling fires. These pumps work on either Electrical Motors or Fuel Motors. They are light weight and can be fitted with Wheels to make them “mobile”. We advise the builders to provide water tapping points at two places on each floor preferably close to each Staircase.</p> <p>We need these pumps to function even in case of power failure. Hence, we advise that in case of using Electrical Motor driven pumps, let them be connected to main generator. Also, use some fuel Motor driven pumps for better reliability.</p>	
4.	<p>Library/Data center Safety:</p> <p>In addition, Data Centers, Book Shelves and important record rooms etc., are recommended to be installed with automatic Aerosol/CO₂/N₂/Neutral Gas Flooding Systems for better safety.</p>	
5.	<p>Display the Following No's at important places</p> <ul style="list-style-type: none"> (i) Fire Department Number (101). (ii) Ambulance (108). (iii) Police (100). 	

09) Means of Escape:

Providing suitable means of Escape to evacuate patients in case of fire outbreak is essential to save lives of people. In many prominent fire accidents such as Kumbakonam school fire, Surat Coaching Center fire, many students lost their lives due to absence of second staircase for escaping as the only staircase engulfed in fire.

Therefore, the guiding principle is to provide at least two good ways of Exit or Evacuation in all buildings. The building architects to provide for appropriate means of escape depending on the number of patients on each floor Choosing among the following options:

- (i) One Staircase and a ramp widely separated from each other.
- (ii) Two Staircases widely separated from each other.
- (iii) One Staircase and fenced pathway to adjacent buildings on all Floors suitable for safe Evacuation.
- (iv) One Staircase and a tube lift (transparent fire proof lift fitted outside the building) with an Exhaust fan on top (to remove smoke from the lift if any) powered by main generator.

As this kind of passive preventive measure is very effective in saving lives, no exemption shall be given for providing two good ways of exit. ***No "Conditional NOC" be issued pending provision of two ways of exit under any circumstances as this will jeopardize basic essential occupant safety.***

10) Mock Drills:

- a) Every Year mock drills to be conducted and all the staff and Management should sign a document certifying the following and keep in record.

We observe that, it is the staff and their attenders who lose lives in case of any major fire accident. Very rarely owners of buildings are affected. Therefore, ***we intend to put power in the hands of most affected people*** by mandating that the signatures of all participants in Mock Drill to be taken in the register for inspection. These "Mock drills" familiarize all concerned people about the status of safety in their workplace. Though, Mock drill is prescribed at least once a year, we urge the managements to have them frequently in the interest of safety, particularly during summer months.

Proforma enclosed:

S.No.	Name of the Employee	Remarks/ Observations	Signature
1.			
2.			
3.			

Certifying that all Pumps and other fire fighting equipment are in working condition and the Fire Extinguishers are not outdated.

- a) That all staff know Exits and Assembly points and what to do in Emergency.
- b) The Mock drill records to be submitted during any inspection.
- c) Endeavour to be made to use the various pumps on daily basis for up keep of buildings and campus, so that, people can readily deploy them during fire emergencies which normally induce panic. Also, regular use will keep all the equipment in good working condition.

11) Inspections & Fire Safety Audit:

There are about 180 fire stations in the State. The Station Fire Officer (SFO) has to be available to respond to Emergency “fire and rescue” calls 365 days and 24x7. In addition, there are about 7,500 Hospitals, 40,000 Schools/Colleges besides many industrial and business Establishments where fire safety inspections for different purposes have to be carried out. It is administratively not practical to get all inspections done through the Fire department officials.

Moreover, many SFO’s have just intermediate qualification and hence SFO’s with such qualifications are “not competent” to inspect technical aspects of Electrical Safety of fire Safety Equipment.

Therefore, the following technically competent people employed with State Government (so that they can be made accountable for accuracy of their reports) are authorized in accordance with powers conferred on Director General for inspection purposes.

- a) All Electrical Engineers Employed with State Government or its undertakings or any State University are authorized to inspect and issue certificate for Electrical Safety after satisfying about the compliance with “Electrical Safety Checklist”.

- b) All Civil Engineers Employed with State Government or its undertakings or any State University are authorized to inspect and issue Certificate of compliance with proper working of installed Fire safety Equipment, plumbing, water availability and suitable Exits.
- c) For conducting "**General Fire Safety Audits**" from time to time, as per guidelines prescribed in this notification, the District Collector is authorized to constitute teams of Electrical Engineers and Civil Engineers along with fire officers.
- d) Is there any inspection required for issuing Provisional "No Objection Certificate"?

No inspection necessary as per G.O Ms. 120, Home (Prisons & Fire) Department, Dated.25-10-2021. This notification is deemed as "Provisional NOC".

- e) Who can carryout inspection for issuing Occupancy "No Objection Certificate"?

The application for Occupancy "No Objection Certificate" should have Fire Audit Certificates of Electrical Engineer and Civil Engineer.

If further inspection is necessary, the Director General of Fire Services can nominate "Non Jurisdictional" Fire Officer of Station Fire Officer & above rank to carryout inspection as per G.O Ms.120, Home (Prisons & Fire) Department, Dated: 25.10.2021. The guiding principle is to do away with monopoly of jurisdictional officers in conducting all inspections to improve transparency.

- f) Can Jurisdictional Officers carryout Inspections?

The Government has issued G.O Ms. 90, Home (Prisons & Fire) Department Dt. 13-08-2021, authorizing to conduct joint inspections along with the concerned department Officials. However, they are encouraged to conduct Mock Drills.

12) Delegation of powers and Deemed Approval for Renewal of “No Objection Certificate”:

Not only that there are about 7,500 Hospitals and 40,000 Schools etc... but the list of such establishments will be growing as the State develops. Hence, the renewal applications will be cumulatively growing leading to huge administrative burden given that there are only about 100 total fire personnel per district (including all ranks and just 5 to 10 officers above SFO rank). They need to be on operational duty 24x7 and 365 days. Hence, the necessity of delegation of powers.

(a) Delegation of Powers:

Applications for renewal of “No Objection Certificate” can be submitted to District Collector or Municipal Commissioners having jurisdiction. Both are equally competent to renew “No Objection Certificate”.

The above officers are here by authorized in accordance with powers conferred on Director General in Sec 13(2) A.P. Fire Services Act, 1999, to renew “No Objection Certificate” after ensuring Fire Audit Certificates of authorized Electrical Engineer and Civil Engineer besides payment of prescribed fee through challan.

The renewal applications shall accompany with affidavit signed by management declaring that all the above said Prudential Safety norms are complied with. All such renewals orders shall be copy marked to District Chief Fire Officer and Director General for proper record.

The applications for renewal can continue to be submitted directly to Director General’s Office. This will do away with monopoly powers of any particular office, thereby improving transparency.

(b) Deemed Approval:

As mandated under Sec 13(2) A.P. Fire Services Act, 1999, the Director General or any officer authorized by him shall issue “No Objection Certificate” within 60 days of the date of complete application. The date of Challan payment is to be treated as date of application for this purpose following the date of said Fire Audit Certificates. If not issued, the Renewal of “No Objection Certificate” is deemed to have been issued, following the doctrine of legitimate expectations as all criteria have been met.

Therefore, the above delegation of powers go a long way in “Ease of doing business” in the State while improving administrative convenience and transparency without compromising Safety.

13) Ambiguities Removal:

- a) About Set backs& Open spaces and measurement of height of buildings.

See Andhra Pradesh Government Gazette W.No.16 dated: 21-04-2022 regarding the above two issues.

- b) Is it necessary to submit drawings of buildings to apply for “No Objection Certificate”?

There is no requirement to submit detailed plans & drawings of buildings. This will avoid unnecessary issue of safety of such sensitive documents specially if submitted online. Such detailed maps may fall into hands of cross border terrorists etc. Therefore, this requirement is dispensed with.

- c) Can fire Department Officials insist on any particular agency to install Fire Safety Equipment?

No, the management have full discretion as to the agencies, manufacturers as long as the equipment installed is either of ISI standards or any International Standards or Industry Recognized Standards.

- d) Are the above prescribed Prudential Fire Safety measures confirm to National building Code (NBC), 2016?

Yes.

NBC, 2016 has no statutory basis and is a set of guidelines to be followed. Moreover, NBC 2016 guidelines provides for authorization of new technologies, methods to remove any hardships or practical difficulties to Director General, Fire Services (clause-5.1, part-II and clause-3.4.2 of part-IV of NBC, 2016).

Carefully conducting root cause analysis of major fire accidents of last 15 years in the State and understanding the hardships and practical difficulties in deploying Conventional Centralized Plumbing System (Part-IV, Table 7 of NBC 2016), the Director General has authorized the following technologies and methods after due testing:

- (i) Decentralized Fire Safety System using Plunger Pumps, Fire Engine Pumps etc.
- (ii) Aerosol Automatic Extinguishing devices.
- (iii) Dry Chemical Powder Modular System.
- (iv) CO₂ flooding system.
- (v) N₂ flooding system.
- (vi) Clean agent flooding system.
- (vii) Installation of automatic heat and temperature sensing devices.

For more details please refer to Andhra Pradesh Government Gazette Notification dated: 18.01.2022.

Therefore, the technologies and methods as notified above are authorized extension of NBC,2016 in Andhra Pradesh State. Part-IV, Table 7 of NBC 2016, doesn't mention about either Electrical Safety. However, in our root cause analysis of major fire accidents in the country, we found 90% of accidents are due to Electrical Short Circuits and leakage of LPG.

Hence, the Director General exercising powers conferred in Sec13(2) of Andhra Pradesh Fire Services Act,1999 has mandated observance of Electrical safety Checklist, kitchen safety and smoke management in the buildings across the State.

14) Who doesn't need "No Objection Certificate" given their inherent nature of activities?

The Apartment Buildings below 18 mtrs height, Commercial/Office(Business)/Hotel Buildings height less than 15 mtrs and below 1000Sqmts floor area on each floor, which do not otherwise require any "No Objection Certificate" as per the law, are hereby exempted from obtaining "No Objection Certificate".

However, all such facilities shall observe "Electrical Safety Checklist", "Smoke Management", Kitchen Safety besides installing adequate number of fire extinguishers and conduct mock drills. In essence, they are not exempted from observing basic safety measures.

15) Alignment of Interests:

In case of fire accident, the Building Owners/management suffers not only property damage but also irreparable loss of reputation especially if any occupant life is lost.

Obviously, the building managements/owner's interest in ensuring "Fire Safety" is in alignment with fire department objectives, provided the mandated requirements are pragmatic.

In arriving at above pragmatic requirements, we have consulted all stakeholders, analyzed major building fire accidents across the country, capitalized on the accumulated experience of fire fighting personnel of all ranks in the department, took advantage of modern technologies, methods and tested.

In designing, testing, evaluating and in creatively finding solutions, the invaluable contributions of Sri. P.Venkata Ramana, Director of Fire Services, Sri. K. Radha Krishna, Architect, Sri. K.V.K.Vikram Kumar, Advocate and many others are hereby acknowledged.

The above minimum requirements for issue of "No Objection Certificate" are hereby notified to avoid compelling owners to install escalating ladder of equipments and to ensure transparency.

Any violation of the above minimum safety provisions will attract prosecution not only under relevant provisions of A.P. Fire Services Act, 1999 but also under appropriate provisions of Indian Penal Code, particularly if the Passive Safety Measures are willfully disregarded as this will compromise basic occupant safety.

In addition, Courts and Tribunals observe whether management has followed the said prudential Safety Measures prescribed by Professional Fire Service, while awarding compensation to the victims of fire accidents in the buildings.

Therefore, the above notification is hereby issued in larger "Public Interest".

PRATAP MADIREDDY,
Director General,
State Disaster Response & Fire Services,
A.P., Vijayawada.